UNITED STATES PATENT AND TRADEMARK OFFICE

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/044,340	01/11/2002	Elfido Coss JR.	2000.086400/TT4559	8005

23720   7590   11/30/2004

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EXAMINER
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ART UNIT	PAPER NUMBER
2113	

DATE MAILED: 11/30/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

	Application No.	Applicant(s)
Office Action Summary	10/044,340	COSS ET AL.
	Examiner	Art Unit
	Marc M Duncan	2113

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE _3_ MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on _27 August 2004_.

2a)☒ This action is **FINAL.**   2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) _1-30_ is/are pending in the application.

    4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) _1-3,7,8,11,12,15,16,20-22,26,27 and 30_ is/are rejected.

7)☒ Claim(s) _4-6,9,10,13,14,17-19,23-25,28 and 29_ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on _11 January 2002_ is/are: a)☒ accepted or b)☐ objected to by the Examiner.

    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

    Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

    a)☐ All   b)☐ Some * c)☐ None of:

      1.☐ Certified copies of the priority documents have been received.

      2.☐ Certified copies of the priority documents have been received in Application No. _____.

      3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

    * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1)☐ Notice of References Cited (PTO-892)

2)☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3)☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.

4)☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.

5)☐ Notice of Informal Patent Application (PTO-152)

6)☐ Other: _____.

FINAL REJECTION

Status of the Claims

Claims 1, 2, 3, 7, 8, 11, 12, 15, 16, 20, 21, 22, 26, 27 and 30 are rejected under

35 U.S.C. 102(e) as being anticipated by Coronel et al.

Claims 4, 5, 6, 9, 10, 13, 14, 17, 18, 19, 23, 24, 25, 28 and 29 are objected to

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that

form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 1, 2, 3, 7, 8, 11, 12, 15, 16, 20, 21, 22, 26, 27 and 30 are rejected under

35 U.S.C. 102(e) as being anticipated by Coronel et al.

Regarding claim 1:

Coronel teaches performing a first process on at least one semiconductor wafer

in col. 14 line 7-col. 16 line 5. The cited lines and columns teach a complete processing

of a semiconductor wafer.

Coronel teaches acquiring data on at least one of a real time basis and a near

real time basis in the Title. The invention is for real-time in-situ supervision; therefore

the data is acquired in real-time.

Coronel further teaches the data comprising at least one of a process state data, a tool state data, and an integrated metrology data resulting from said first processing of a semiconductor wafer in col. 15 lines 14-15, lines 19-21 and lines 45-47. The process state data is represented by the process name, the tool state data is represented by the RF shutdown and the integrated metrology data is represented by the measurement of the photoresist layer thickness, for example.

Coronel teaches storing said data in a database in col. 14 lines 15-17 and col. 16 lines 9-10.

Coronel further teaches performing a fault analysis based upon said data acquired from said database based upon a trigger signal that causes data to be extracted from said database on a substantially real time basis in col. 16 lines 9-16. When the process completes, the wafer history and any alert codes are stored. These encompass the claimed data that is acquired in real time and stored in the database. At the end of the process, if an alarm condition has been flagged, the data are retrieved from the database, in real time, given that this a real time method, and a fault analysis is performed based on the data. This fault analysis can be seen in lines 14-16 when the wafer is identified and the cause of the failure is determined from the reports. The trigger is represented by the flag condition. If an alarm has been flagged, then the data is retrieved and analyzed. If that condition is not flagged, then the data is not retrieved. The trigger signal of the instant claim clearly reads on this operation. If an alarm condition is flagged, a signal is necessarily produced to retrieve the data. This signal is the trigger signal of the instant claims.

Regarding claim 2:

Coronel teaches performing a second process on a semiconductor wafer based upon processing modifications made in response to said fault detection in col. 14 lines 17-21.

Regarding claim 3:

Coronel teaches wherein acquiring metrology data from said first process of semiconductor wafer further comprises acquiring integrated metrology data using an integrated metrology tool in col. 15 lines 19-21 and lines 50-54.

Regarding claim 7:

Coronel teaches triggering said database for extracting said data in col. 14 lines 15-17 and col. 15 lines 26-33. The sending of the wafer ID starts the process and starts the analysis of the sent signals. This is, therefore, equivalent to a trigger signal. The trigger signal causes the data to be acquired from the database. After the wafer ID is sent and the process starts, the sent signals are analyzed immediately, i.e. in real time, which requires the data to be acquired from the database and therefore necessarily includes a trigger signal to acquire the data.

Coronel teaches analyzing said data triggered from said database in col. 14 lines 34-37 and col. 15 lines 28-30.

Coronel teaches detecting a fault based upon said analysis of said triggered data in col. 15 lines 30-33.

Coronel further teaches performing a fault compensation process in response to a determination that said calculated fault is above a predetermined tolerance level in col. 15 lines 30-33.

Regarding claim 8:

Coronel teaches wherein triggering said database for extracting data further comprises providing a triggering signal to said database to extract said data from said database in col. 14 lines 15-17 and col. 15 lines 26-33. The sending of the wafer ID starts the process and starts the analysis of the sent signals. This is, therefore, equivalent to a trigger signal. The trigger signal causes the data to be acquired from the database. After the wafer ID is sent and the process starts, the sent signals are analyzed immediately, i.e. in real time, which requires the data to be acquired from the database and therefore necessarily includes a trigger signal to acquire the data.

Regarding claim 11:

Coronel teaches wherein storing said data in a database further comprises storing said data in a real-time database in the Title and col. 14 lines 39-40.

Regarding claim 12:

Coronel teaches performing a first process on at least one semiconductor wafer in col. 14 line 7-col. 16 line 5. The cited lines and columns teach a complete processing of a semiconductor wafer.

Coronel teaches acquiring data on a substantially real-time basis in the Title. The invention is for real-time in-situ supervision; therefore the data is acquired in real-time.

Coronel further teaches the data comprising at least one of a process state data, a tool state data, and an integrated metrology data resulting from said first processing of semiconductor wafer in col. 15 lines 14-15, lines 19-21 and lines 45-47. The process state data is represented by the process name, the tool state data is represented by the RF shutdown and the integrated metrology data is represented by the measurement of the photoresist layer thickness, for example.

Coronel teaches storing said data in a database in col. 14 lines 15-17 and col. 16 lines 9-10.

Coronel teaches extracting said data from said database based upon a trigger signal directed to said database, said trigger signal being capable of extracting said data from said database at a substantially real-time rate in col. 16 lines 9-16. When the process completes, the wafer history and any alert codes are stored. These encompass the claimed data that is acquired in real time and stored in the database. At the end of the process, if an alarm condition has been flagged, the data are retrieved from the database, in real time, given that this a real time method. The trigger signal of the instant claim clearly reads on this operation. If an alarm condition is flagged, a signal is necessarily produced to retrieve the data. This signal is the trigger signal of the instant claims.

Coronel further teaches performing a fault analysis based upon said extracted data acquired from said database in col. 16 lines 9-16. This fault analysis can be seen in lines 14-16 when the wafer is identified and the cause of the failure is determined from the reports. The trigger is represented by the flag condition. If an alarm has been

flagged, then the data is retrieved and analyzed. If that condition is not flagged, then the data is not retrieved.

Coronel further teaches performing a second process on a semiconductor wafer based upon processing modifications made in response to said fault detection in col. 16 lines 39-41.

Regarding claim 15:

The claim is rejected as the apparatus for performing the method of claim 1.

Regarding claim 16:

Coronel teaches a process controller to perform a fault detection using substantially real-time data from a database in Fig. 7 - "35."

Coronel teaches performing a first process on at least one semiconductor wafer in col. 14 line 7-col. 16 line 5. The cited lines and columns teach a complete processing of a semiconductor wafer.

Coronel teaches acquiring data on at least one of a real time basis and a near real time basis in the Title. The invention is for real-time in-situ supervision; therefore the data is acquired in real-time.

Coronel further teaches the data comprising at least one of a process state data, a tool state data, and an integrated metrology data resulting from said first processing of semiconductor wafer in col. 15 lines 14-15, lines 19-21 and lines 45-47. The process state data is represented by the process name, the tool state data is represented by the RF shutdown and the integrated metrology data is represented by the measurement of the photoresist layer thickness, for example.

Coronel teaches storing said data in a database in col. 14 lines 15-17 and col. 16 lines 9-10.

Coronel further teaches performing a fault analysis based upon said data acquired from said database based upon a trigger signal that causes data to be extracted from said database on a substantially real time basis in col. 16 lines 9-16. When the process completes, the wafer history and any alert codes are stored. These encompass the claimed data that is acquired in real time and stored in the database. At the end of the process, if an alarm condition has been flagged, the data are retrieved from the database, in real time, given that this a real time method, and a fault analysis is performed based on the data. This fault analysis can be seen in lines 14-16 when the wafer is identified and the cause of the failure is determined from the reports. The trigger is represented by the flag condition. If an alarm has been flagged, then the data is retrieved and analyzed. If that condition is not flagged, then the data is not retrieved. This trigger signal of the instant claim clearly reads on this operation. If an alarm condition is flagged, a signal is necessarily produced to retrieve the data. This signal is the trigger signal of the instant claims.

Coronel further teaches a database operatively coupled to the process controller, said database to acquire said data in a substantially real-time basis and to provide said processed data to said process controller for performing said fault detection in Fig. 7 – "35 – Database."

Regarding claim 20:

The claim is rejected as the computer program product for performing the method of claim 1.

Regarding claim 21:

The claim is rejected as the computer program product for performing the method of claim 2.

Regarding claim 22:

The claim is rejected as the computer program product for performing the method of claim 3.

Regarding claim 26:

The claim is rejected as the computer program product for performing the method of claim 7.

Regarding claim 27:

The claim is rejected as the computer program product for performing the method of claim 8.

Regarding claim 30:

The claim is rejected as the computer program product for performing the method of claim 11.

Allowable Subject Matter

Claims 4, 5, 6, 9, 10, 13, 14, 17, 18, 19, 23, 24, 25, 28 and 29 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Response to Arguments

Applicant's arguments filed 8/27/04 have been fully considered but they are not persuasive.

Applicant's arguments concerning the novelty of claims 1, 12, 15, 16 and 20 have been considered, but the examiner respectfully disagrees. Applicant has focused on columns and lines of the reference that were not cited by the examiner as teaching the claim limitations and stated that these were the teachings relied upon. This is not proper. Applicant has stated that the reference does not teach retrieving the data based on a trigger and performing a fault analysis on the retrieved data. Applicant repeatedly states that the examiner relied on an alert code described in col. 13 lines 12-18 to teach the trigger signal of the instant claims. This is not the case. The examiner urges applicant to refer to the citations, amended in this action to clarify the specific sections the examiner relies upon, contained above. Applicant further argues that that the reference does not teach acquiring data on a real time basis and storing the data in the database. Applicant the goes on to state that Coronel discloses applying algorithms stored in a database to analyze corresponding signals. While this is true, it has no bearing on the storage of obtained data. In columns and lines cited above, Coronel clearly teaches performing various measurements and monitoring of processing parameters in real-time. The results of these measurements and monitoring operations are clearly stored in the database, among other information also obtained in real-time from the processing of the semiconductor wafer. The examiner therefore maintains the previous rejections.

The amendments to claims 7, 12 and 26 were sufficient to obviate the previous

USC 112 rejections and the rejections have accordingly been removed.

Conclusion

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time

policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE

MONTHS from the mailing date of this action. In the event a first reply is filed within

TWO MONTHS of the mailing date of this final action and the advisory action is not

mailed until after the end of the THREE-MONTH shortened statutory period, then the

shortened statutory period will expire on the date the advisory action is mailed, and any

extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of

the advisory action. In no event, however, will the statutory period for reply expire later

than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the

examiner should be directed to Marc M Duncan whose telephone number is 571-272-

3646. The examiner can normally be reached on M-T and TH-F 6:00-4:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's

supervisor, Robert Beausoliel can be reached on 571-272-3645. The fax phone

number for the organization where this application or proceeding is assigned is 703-

872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

md

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